

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~Process~~A process for producing a compound of the formula LiMPO_4 , comprising:

- a. producing a precursor mixture containing at least one Li^+ source, at least one M^{2+} source and at least one PO_4^{3-} source, wherein M comprises at least one metal from the first transition series; in order to form a precipitate and thereby to produce a precursor suspension;
- b. dispersing or milling the precursor mixture or suspension until the D90 value of particles in a precipitate of the precursor mixture or suspension are less than $50\mu\text{m}$; and
- c. obtaining LiMPO_4 from the precursor mixture or suspension by reaction under hydrothermal conditions.

2. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the D90 value of the particles is at most $25\mu\text{m}$.

3. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein M comprises Fe.

4. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein M is selected from Fe, Mn, Co and Ni and mixtures thereof.

5. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the LiMPO_4 is in pure-phase form.

6. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the dispersing or milling begins before or during precipitation of the particles in the precursor mixture or suspension and is continued until the precipitation has concluded.

7. (Canceled)

8. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein evaporation does not occur prior to the reaction of the precursor mixture or suspension under hydrothermal conditions.

9. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein sintering does not take place prior to the reaction of the precursor mixture or suspension under hydrothermal conditions.

10. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the LiMPO_4 is dried following the reaction under hydrothermal conditions.

11. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the production of the precursor mixture or suspension or the reaction under hydrothermal conditions takes place in the presence of at least one further component ~~selected from that is~~ a carbon-containing substance, an electron-conducting substance, the precursor of the electron-conducting substance, ~~and~~or mixtures thereof.

12. (Currently Amended) ~~The process~~Process according to claim 11, ~~characterized in that~~wherein the electron-conducting substance is ~~selected from~~ conductive carbon, carbon fibers ~~and~~or mixtures thereof.

13. (Currently Amended) ~~The process~~Process according to claim 11, ~~characterized in that~~wherein the precursor of the electron-conducting substance comprises a sugar compound.

14. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the Li^+ source is ~~selected from~~ LiOH , Li_2CO_3 ~~and~~or mixtures thereof.

15. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the Fe^{2+} source is selected from FeSO_4 , FeCl_2 , FeNO_3 , $\text{Fe}_3(\text{PO}_4)_2$, an organyl salt of iron and mixtures thereof.

16. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the PO_4^{3-} source is selected from phosphoric acid, a metal phosphate, hydrogen phosphate, dihydrogen phosphate and mixtures thereof.

17. (Currently Amended) ~~The process~~Process according to claim 1 ~~characterized in that~~wherein water is a solvent for the precursor mixture or suspension.

18. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the Li^+ source and the M^{2+} source are in the form of aqueous solutions, and the PO_3^{3-} source is in the form of a liquid or an aqueous solution.

19. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the precipitate formed comprises at least one precursor of LiMPO_4 .

20. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the hydrothermal conditions comprise a temperatures between 100 and 250°C, and a pressure from 1 bar to 40 bar.

21. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the components of the precursor mixture or suspension are present in a stoichiometric ratio ~~selected from~~of: a. 1 mole Fe^{2+} :1 mole PO_4^{3-} :1 mole Li^* ,

b. 1 mole

Fe^{2+} :1 mole PO_4^{3-} :3 mole Li^+ , ~~and/or~~

c. any mixing ratio between a. and b.

22. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the reaction under hydrothermal conditions takes place under an inert gas atmosphere.

23. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the M^{2+} source and the PO_4^{3-} source are first mixed in an aqueous solvent under an inert gas atmosphere, followed by the addition of the Li^+ source under a protective gas or inert atmosphere, and then the reaction under hydrothermal conditions is carried out.

24. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein the dispersing or milling comprises a treatment with a dispersing ~~means~~apparatuses selected from ~~Ultraturrax that are~~ stirrers, mills, ~~such as colloid mills or Manton Gaulin mills,~~ intensive mixers, centrifugal pumps, in-line mixtures, mixing nozzles, such as injector nozzles, ultrasound appliances ~~and/or~~ combinations thereof.

25. (Currently Amended) ~~The process~~Process according to claim 1, ~~characterized in that~~wherein a stirring mechanism is used for the dispersing or milling conducted along with the introduction of power, calculated according to the formula $P=2 \pi n M$, where M represents the torque and n represents the rotational speed, being at least 5 kW/m^3 .

26. (Currently Amended) ~~The process~~Process according to claim 11, ~~characterized in that~~wherein the further component is used as a crystallization nucleus in the precursor mixture or solution.

27. (Canceled)

28. (Previously Presented) The process of claim 1, wherein the LiMPO_4 has a mean particle size, D50 value of less than $0.8\mu\text{m}$.

29. (Previously Presented) The process of claim 1, wherein the D10 value of the particles is less than $0.4\mu\text{m}$ and the D90 value is less than $3.0\mu\text{m}$.

30. (Previously Presented) The process of claim 29, wherein the difference between the D90 value and the D10 value of the particles is no more than $2\mu\text{m}$.

31. (Previously Presented) The process of claim 1, wherein the BET surface area of the particles is more than $3.5\text{m}^2/\text{g}$.

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Currently Amended) The process Process according to claim 1, ~~characterized in that~~ wherein the LiMPO_4 , after the hydrothermal treatment is separated off by filtration or centrifuging, is dried and deagglomerated.

37. (Currently Amended) The process Process according to claim 1, ~~characterized in that~~ wherein the LiMPO_4 , obtained from the hydrothermal treatment is mixed with at least one carbon precursor material, such as sugar or cellulose, by kneading.

38. (Currently Amended) ~~The process~~Process according to claim 37, ~~characterized in that wherein~~ the mixed material produced is dried and heated to a temperature between 500°C. and

1000°C., during which operation the carbon precursor material is pyrolyzed to form carbon.

39. (Currently Amended) ~~The process~~Process according to claim 38, ~~characterized in that wherein~~ the pyrolysis process is followed by a milling or deagglomeration treatment.

40. (Currently Amended) ~~The process~~Process according to claim 38, ~~characterized in that wherein~~ the drying is carried out under a protective gas, in air or in vacuo at temperatures of from 50° C. to 200° C., and the pyrolysis is carried out under a protective gas.

41. (Previously Presented) LiMPO₄ particles produced by the process of claim 1, wherein said particles have a particle size distribution such that the D90 value for said particle aggregates is less than 3.0μm.

42. (Previously Presented) The LiMPO₄ particles of claim 41, wherein the D90 value of said particles is less than 2.0μm.

43. (Previously Presented) LiMPO₄ particles produced by the process of claim 1, wherein the difference between the D90 value of the particles and the D10 value is no more than 2μm.

44. (Previously Presented) LiMPO₄ particles of claim 43, wherein the difference between the D90 and the D10 value is less than 1.5μm.